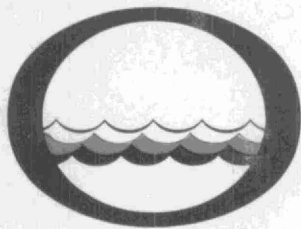


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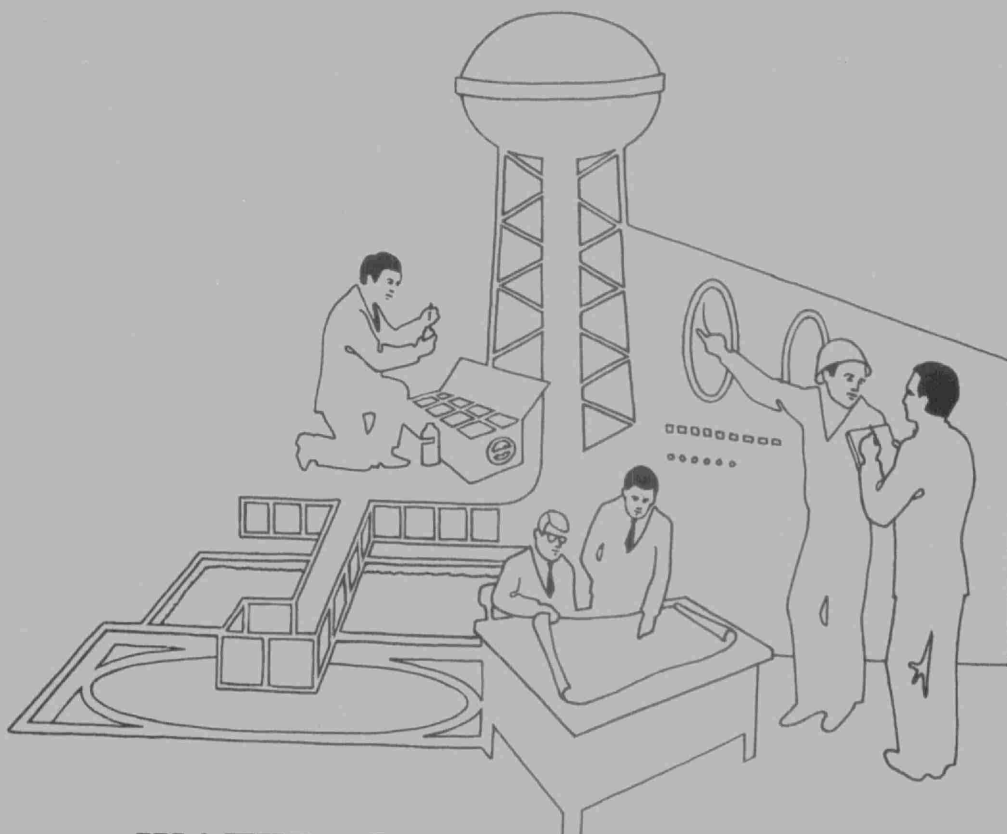


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WATER POLLUTION SURVEY

of the

VILLAGE OF NEUSTADT

COUNTY OF GREY

1971

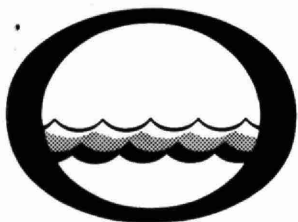
VILLAGE OF NEUSTADT
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1971

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Water management in Ontario

Ontario
Water Resources
Commission

135 St. Clair Ave. W.
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Tel. 365- 1655

The Corporation of the Village of Neustadt,
Box 18,
NEUSTADT, Ontario.

Attn: Mr. W. Schaus, Clerk-Treasurer

Gentlemen:

Re: Village of Neustadt
- Water Pollution Survey

I am enclosing a copy of a report on a Water Pollution Survey performed in the Village of Neustadt, during May 1971, by district field staff. The purpose of the survey was to locate, record and evaluate the extent of pollution in the village.

The survey showed that excess levels of pollution are being generated in the village as a result of malfunctioning domestic sewage systems, or direct discharging, and that sanitary wastes are gaining access to local surface water. Consequently, the report recommends that the Village of Neustadt take immediate action to eliminate all sewage discharges by the provision of a municipal sewage collection and treatment system.

Yours very truly,

J.R. McMurray, P.Eng.
District Engineer,
Division of Sanitary Engineering.

KDA/ek
encl.

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on

WATER POLLUTION SURVEY

of the

VILLAGE OF NEUSTADT

Township of Normanby

County of Grey

District Engineers Branch
Division of Sanitary Engineering

Date of Sampling: May 9, 1971

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POLLUTION SURVEY OF NEUSTADT

INTRODUCTION

The purpose of this survey was to locate and record significant sources of water pollution within the Village of Neustadt. Surveys of this nature are conducted routinely throughout the Province of Ontario by the Sanitary Engineering Division of the Ontario Water Resources Commission and form a basis for evaluating any existing or potential sources of pollution.

Recommendations are subsequently made pertaining to pollution abatement.

The appendices to this report include a tabulation of the sample results, an interpretation of the laboratory tests and a map of the area showing the sampling point locations.

GENERAL

Location

The Village of Neustadt is located in the Township of Normanby, County of Grey, at the cross road of County roads 16 and 10, near the Bruce-Grey County boundary. The Meux Creek flows through the village and is intercepted by the smaller Neustadt Creek.

Population

The present population is 587 persons. (1971 Municipal Directory) The village has a projected population estimate of about 890 by 2009.



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Soil Conditions

The types of soils in this area vary from sandy loam to heavy clays making the use of sub-surface disposal systems impractical in many areas.

Recreational

Meux Creek was reportedly once fished extensively for brown trout but in recent years trout runs have decreased and the stream is now rarely fished.

EXISTING SERVICES

Water

There is no municipal water supply in the village.

Sewage

There are no municipal facilities for the collection and treatment of domestic sewage within the village. The disposal of sanitary wastes is left to the individual property owners and in most cases this consists of septic tanks systems.

The municipality has installed a storm water collector system consisting of ten runs or about 1.27 miles in total length.

PRIVATE SEWAGE DISPOSAL

Correspondence from the Bruce County Health Unit, previous OWRC surveys and reports by a consulting engineering firm all indicate that a sewage disposal problem exists in the business section of the community where lack of space precludes the installation of adequate septic tank and tile field systems.

Since 1965, a number of private disposal systems have been installed with limited tile beds. This has been allowed because an early connection to a municipal sanitary sewer was expected.

Many narrow and undersized lots are scattered throughout the village and are unsuitable for development without municipal services.

PREVIOUS STUDIES

- 1964 The village experienced an outbreak of hepatitis which led the Grey-Owen Sound Health Unit to do a survey of the water supplies. Eighty-six village properties were tested, 54% were contaminated with coliform organisms and 13% of these contained fecal bacteria.
- 1965 The Consulting Engineering firm of A.M. Mackey & Associates prepared the first of three preliminary reports on proposed sewage works. The latter reports were released in 1966 and 1968.
- 1970 Mr. J.D. Snider, staff member of the OWRC, conducted a sampling program which indicated heavy pollution throughout the village.
- 1971 The Grey-Owen Sound Health Unit is of the opinion that the village should install both a municipal sanitary sewage system and municipal water supply.

SURVEY RESULTS

The chemical and bacteriological sample results of this survey and the sampling location may be found in the Appendices II and III respectively.

A total of 24 chemical and 25 bacteriological samples were collected during the survey from scattered locations within the village.

All 25 bacteriological samples were contaminated with coliform and fecal coliform bacteria. Four of the samples, Nos. 14, 17, 19 and 20 contained in excess of 1.5 million coliform organisms per 100 ml.

Anionic Detergents were present in 80% of the chemical collected samples.

A number of buildings on the east bank of Meux Creek on Mill Street were found to be discharging sanitary wastes directly into Meux Creek.

Sample results collected from the storm sewer system confirm that human sanitary wastes are entering virtually every storm sewer in the village.

A number of houses between Stepana and Queen Streets bordering on Neustadt Creek were found discharging sanitary wastes into the creek by way of backyard drains.

DISCUSSION

The survey indicated that the Village of Neustadt's present methods of sewage disposal are totally inadequate. The sample analyses point out that untreated or partially treated domestic wastes are being discharged to Neustadt and Meux Creeks.

Corrective measures must be taken to stop this discharge of sewage to the natural watercourses.

Remedial action may be undertaken either on an individual basis by disconnecting illegal storm sewer connections and building adequate sub-surface disposal systems or by constructing a municipal sewage collection and treatment system.

As soil characteristics of the area, undersized lots and the Mill Street business section do not readily lend themselves to satisfactory sub-surface disposal systems, it is therefore advisable that a communal sewage collection and treatment facilities be provided in the Village of Neustadt to eliminate the pollution of Neustadt and Meux Creeks.

SUMMARY

On May 12, 1971, a water pollution survey was conducted in the Village of Neustadt. As shown previously and during the present study, pollution of Meux Creek and Neustadt Creek by domestic wastes is occurring. The cause of pollution cannot be

The cause of pollution cannot be localized because it is general throughout the village. The main sources of pollution appear to be illegal connection to storm sewers and faulty septic tanks or a combination of both.

CONCLUSION

As a result of this survey and previous studies conducted in the Village of Neustadt, it may be concluded that domestic wastes originating from locations throughout the entire village, are being discharged to Neustadt and Meux Creeks.

RECOMMENDATION

It is recommended that the Village of Neustadt take immediate action to eliminate all sewage discharges by the provision of a municipal sewage collection and treatment system.

Prepared by:

K.D. Anderson
K.D. Anderson,
District Engineers Branch,
Division of Sanitary Engineering.

/ek

APPENDIX I

INTERPRETATION AND SIGNIFICANCE OF ANALYSES RESULTS

For convenience in the interpretation of laboratory analyses results, the Ontario Water Resources Commission water quality objectives for surface water drains and watercourses are listed as follows:

Bacteriological Examination

The membrane filter (MF) technique is employed at OWRC Laboratories to obtain a direct enumeration of coliform organisms and is reported per 100 millilitres (ml) of the sample.

The presence of coliforms may indicate pollution from both fecal and non-fecal sources while E. Coli organisms indicate pollution of intestinal origin only.

Sanitary Chemical Analyses

Biochemical Oxygen Demand (BOD)

The BOD of sewage or polluted waters is the oxygen required during stabilization of the decomposable organic material by aerobic biochemical action. A five-day BOD determination with incubation at 20 degrees Centigrade is reported. A high BOD is indicative of organic or chemical pollution. A desirable upper limit in surface water is four (4)* parts per million (ppm) while the objective maximum in waste discharges to a watercourse is 15 ppm.*

* See next page.

Solids

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and dissolved matter in water. The concentration of suspended solids which indicates the measure of undissolved solids of organic or inorganic nature is generally the most significant of the solids analyses in regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habitat of fish. The OWRC's objective for discharge is a suspended solids concentration of not greater than 15 ppm.*

Alkyl Benzene Sulfonate (ABS)
-(Anionic Surfactant) — — — —

The surfactant is a synthetic organic chemical which is used as a principal ingredient of modern household detergents. The popular use of synthetic detergents for general cleaning purposes has resulted in the incidence of residual ABS in waste discharges. Therefore, the presence of detergents in water samples is usually an indication of pollution from domestic sources.

* Under very restrictive environmental conditions such as low stream flow or intensive water use, these quality criteria and effluent requirements may have to be up-graded or become more restrictive.

APPENDIX II

Sample Locations

Date: May 12, 1971

Point No.	Sample Location	5-Day BOD (ppm)	Solids Susp.	ABS (ppm)	MEMBRANE FILTER	
					Fecal Coliform per 100 ml	Coliform per 100 ml
SSM-66-2 I-1	pond behind creamery	1.4	5	0.1	30	2,110
SSM-66.2 I-1-B	discharge pipe behind creamery	-	-	-	500	> 15,000
SSM-66.2 W-2	south side of bridge by old outfall	1.8	5	0.0	80	1,000
SSM-66.1 P-3	north side storm outfall	1.4	10	0.0	< 10	190
SSM-66.1 S-4	west side spring	2.5	5	0.0	< 10	22,800
SSM-66.1 W-5	outfall foot of Stephana Street	1.2	5	0.1	> 15,000	> 15,000
SSM-66.0 P-6	concrete storm outfall behind burned out area	1.6	5	0.0	> 15,000	> 15,000
SSM-66.0 P-7	outfall behind Monk's Restaurant	3.0	10	0.1	700	104,000
SSM-66.0 P-8	outfall behind house north of Monk's Restaurant	2.5	5	0.3	33,800	150,000
SSM-66.0 W-9	storm out fall behind Hammers Hardware	1.8	5	0.0	4,800	12,400
SSM-65.9 S-10	downstream of Queen Str.	1.4	5	0.1	310	2,000
SSM-66.2 S-11	Neustadt Creek at Barbara	1.6	5	0.1	< 10	430
SSM-66.2 W-12	William St. SS to Neustadt Creek	1.2	5	0.1	< 10	420
SSM-66.0 W-13	Queen St. and Adam St. SS	28	190	0.3	30,000	100,000
SSM 65.9 W-14	Adam St. SS at John St.	65	240	5.7	400,000	1,500,000
SSM-65.8 W-15	Adam St. SS discharge to ditch	1.0	10	0.2	1,260	> 15,000
SSM-65.9 W-16	Adam St. just north of Queen St.	16	20	0.8	180	> 15,000
SSM-66.1 W-17	Stephana St. at Mill Str.	140	380	5.8	1,000,000	9,700,000
SSM-66.1 W-18	Stephana St. SS	260	500	17	40,000	60,000

APPENDIX II - cont'd.

Sample Locations

May 12, 1971

<u>Point No.</u>	<u>Sample Location</u>	5-Day BOD (ppm)	Solids Susp. (ppm)	ABS (ppm)	<u>MEMBRANE FILTER</u>	
					<u>Fecal Coliform per 100 ml</u>	<u>Coliform per 100 ml</u>
SSM-66.0 P-19	dishcharge to Neustadt Creek	95	20	1.0	260,000	2,000,000
SSM-66.0 P-20	Mill St. at Queen St.	220	320	6.0	900,000	1,900,000
SSM-66.0 P-21	Neustadt Creek at Ptephana Street	0.6	5	0.1	330	890
SSM-66.0 P-22	Neustadt Creek at outfall	140	460	1.0	> 150,000	> 150,000
SSM-66.0 P-23	Private House on Neustadt Creek	100	320	10.5	> 150,000	> 150,000
SSM-66.0 W-24	Queen St. SS to Neustadt Creek	20	15	0.3	169,000	369,000

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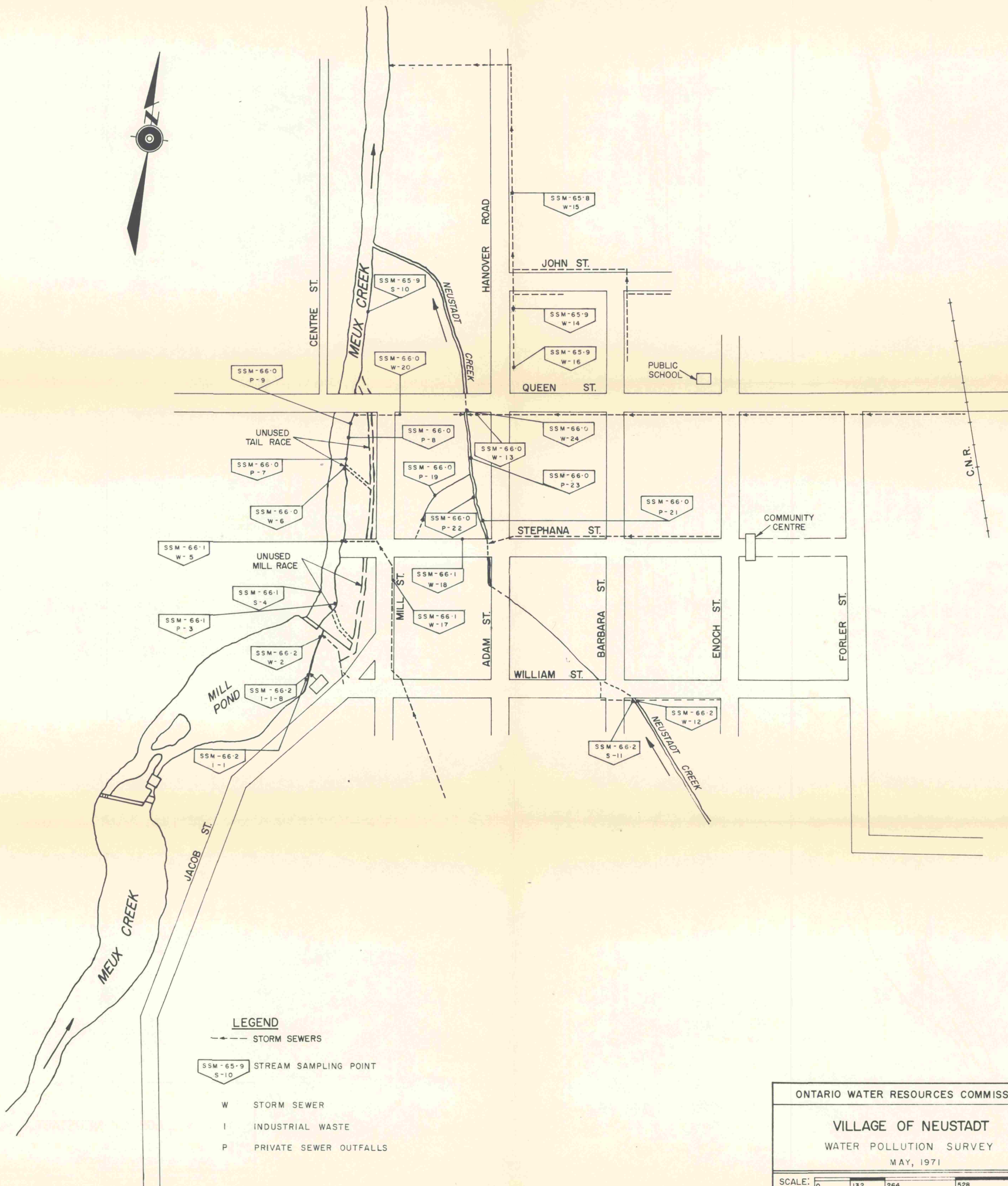
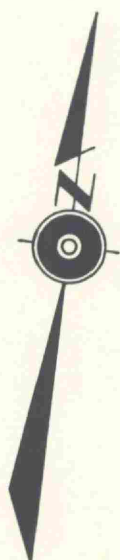
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